

3.0 NATURE OF CONTAMINATION

3.1 Surface Soils

Analytical results of the shallow soil samples analyzed indicate the presence of PCBs in soils in the north parking area and in exposed soils in the alleyway of the City Parcel building. Figure 6 shows the PCB concentrations for each shallow soil sample location from the April 2000 soil investigation. The highest concentrations of PCBs (up to 11,500 milligrams per kilogram (mg/kg)) were found in the 0- to 6-inch samples; however, substantial PCB concentrations (up to 1,740 mg/kg) were detected in samples from 6 to 12 inches bgs.

Diesel range and lube oil range hydrocarbons were detected in several shallow soil samples but mostly at levels below the MTCA Method A cleanup level of 2,000 mg/kg for unrestricted land use. One shallow soil sample contained Diesel Range Total Petroleum Hydrocarbons (TPH-D) at a level of 2,040 mg/kg which is just slightly above the Method A cleanup level. Some volatile hydrocarbons and volatile organic compounds (VOCs) were also detected below MTCA Method A levels in a limited number of shallow soil samples.

Table 1 shows a summary of the soil analytical results.

3.2 Subsurface Soils

Subsurface soil investigation during the RI included an evaluation of soils to a maximum of 60 feet bgs from four exploratory borings and five monitoring well borings. One monitoring well boring and four exploratory borings were located inside the building. Subsurface soil analytical results indicate little PCB contamination with depth at the site. Of the 26 subsurface soil samples analyzed for PCBs, only four had detectable concentrations of PCBs. Analytical results for TPH and PCBs detected in subsurface soil samples are also shown in Table 1.

3.3 Ground Water

Five monitoring wells (MW-2 through MW-6, shown in Figure 5) were installed by Ecology during the 2002 RI. MW-2 is a background well; MW-3, MW-4, and MW-5 are down gradient wells. MW-1, installed in 1997 by City Parcel, is on the south end of the alleyway. MW-6 is located inside the building near a dry well. Results of four events of ground water investigations from April 2002 through May 2003 are shown in Table 2 for MW-1, MW-4, MW-5, and MW-6. No PCBs were detected in ground water samples from MW-2 and MW-3 for all four sampling events. PCBs were found in MW-1 at a concentration of 1.88 micrograms per liter (ug/L) in April 2002 but were not detected in the subsequent three sampling events. PCBs were not detected in ground water from the rest of the wells for all sampling events.

3.4 Contaminants and Media of Concern

The results that are summarized in Tables 1 and 2 show that PCBs (Aroclor 1260) is the only contaminant of concern and shallow soil is the only medium to consider.

PCB-1260 is also referred to as Aroclor 1260. PCBs are a group of chemicals that contain 209 individual compounds called congeners. PCBs made in the United States were marketed under the trade name Aroclor and are identified by a four digit numbering code in which the first two digits indicate that the parent molecule is a biphenyl. For the 1200 series aroclors, the last two digits indicate the chlorine content by weight; Aroclor 1260 has 60 percent chlorine. The persistence of PCBs increases with an increase in the degree of chlorination. PCBs are probable carcinogens in humans.

Total PCB analysis has been reported as total aroclor equivalents. However, since the aroclor patterns in environmental samples are often degraded, quantification of individual PCB congeners are obtained. Results of the congener analysis provided background information on the distribution of congeners present. For the City Parcel Site, the congener analysis results show that PCB contamination consists primarily of congeners with high degrees of chlorination. This confirms the finding that the PCB contamination is characterized as Aroclor 1260, a mixture of highly chlorinated of PCBs.

3.5 Current and Potential Pathways of Exposure

- A current exposure pathway for the shallow soils is ingestion, dermal contact, or inhalation. Disturbances to the temporary gravel cover and the shallow soils may cause ingestion or dermal contact with soils and inhalation of dust emissions.
- PCBs have very low vapor pressure. The rate of volatilization of PCBs from the soil is very low. Therefore, the inhalation of vapor pathway is not a current or potential pathway of exposure.
- Another pathway that relates to soil is the potential for future migration of soil chemicals to ground water. Although current conditions show that the soil chemicals are not migrating to the ground water, a change in Site conditions may have a bearing on the potential of PCBs to migrate. For example, in the presence of organic solvents, PCBs may leach quite rapidly through soil.
- Significant terrestrial ecological receptor exposure is not expected at this Site. The Site is in an industrial area that is not frequented by wildlife.